HALFF

12225 Greenville Ave, Ste 200
Dallas, Texas 75243
(214) 572-2272
Fax (214) 572-2273

Summary Transmittal Letter

TO:	Louis C Herrin III, P.E. Water Quality Division, TCEQ Mail Code 148 PO Box 13087 Austin, TX 78711-3087	**DATE:**	November 12, 2010.
FROM:	Jayson Melcher, P.E.	**AVO:**	27536
EMAIL:	jmelcher@halff.com		
SUBJECT:	Peak Flow Storage at Existing Wastewater Treatment Plant in Anna, Texas		

Dear Mr. Herrin

This summary transmittal letter for a new peak flow storage basin in conjunction with an existing wastewater treatment plant in Anna, Texas is submitted as required by the requirements of 30 TAC Chapter 217.6 (c).

Project Name: Peak Flow Storage at the Wastewater Treatment Plant for Collin County Adventure Camp

Project Location:
On the grounds of Collin County Adventure Camp in northeast Collin County at 1180 Houston St. Anna, Tx 75409. The plant is located 3,400 feet northeast of the intersection of Farm-to-Market Road 2862 and County Road 511.

Owner:
Collin County
4600 Community Ave.
McKinney, TX 75071
Contact: Bill Burke
P (972) 547-5340
F (972) 547-5385
Permit Number – WQ0014486001
EPA ID Number – TX0126241
Reference Number – 104000245
CN - 600745038

Design Firm:
Halff Associates, Inc
TBPE Firm Reg. #312
12225 Greenville Ave
Dallas, TX 75243

Design Engineers:
Jayson Melcher, P.E.
P (214) 572-2272
F (214) 572-2273

Brief Engineering Description:

The existing wastewater treatment plant was constructed in 2006. Camp wastewater enters the plant flowing first into a 2,000 gallon trash tank. The wastewater then flows to the influent lift station, which is a series of three concrete tanks with the same basic floor elevation. Due to the large surface area of the rectangular tanks, this configuration results in a significant volume below the Pump OFF level (inactive volume) and a substantial volume between the Pump ON and OFF levels (active volume). As currently configured, the lift station has the following capacities:

HALFF

12225 Greenville Ave, Ste 200
Dallas, Texas 75243
(214) 572-2272
Fax (214) 572-2273

Inactive Volume	4,600 gal
Active Volume	3,800 gal
Peak Flow Capacity	7,300 gal

The wastewater is pumped from the lift station directly to the anoxic basin in the MBR unit.

The plant is permitted for 0.032 MGD. The average daily flow at the plant since January 2008 is approximately 8,200 gpd. Flow records dating to January 2008 were provided by the plant operator. The records show that the permitted capacity has been exceeded once since January 2008; the maximum daily flow from that period was 34,400 gpd recorded in June 2009. Consequently, Collin County has initiated this project to provide additional peak flow storage.

The plant operator requested that approximately 20,000 gallons of peak flow storage be provided. This volume will be sufficient for peak flow events and provide at least two days of storage in case significant repairs or replacements are required at the plant; since only one treatment train exists, incoming flow may have to be temporarily stored during major maintenance activities. The owner and operator also requested that new materials be corrosion-resistant to maximize their design lives.

Due to the significant inactive volume in the existing lift station, the proposed design includes a new lift station consisting of a 5-foot diameter FRP wet well and duplex submersible pumps. The pump capacity of the new lift station will be equal to the existing pump capacity (approximately 45 gpm).

Peak flow storage will be achieved in two basins. The primary storage unit consists of 72 linear feet of 60-inch diameter pipe. ASTM F-2764 polypropylene sewer pipe is the proposed material, but ASTM F-1803 PVC pipe will be also bid as an alternate material. The pipe will be constructed in two segments, both on two percent grade flowing to the new wet well in the middle. In a peak flow event, the water level in the wet well will rise above the Pump ON level and directly into the primary peak flow unit (the primary unit will remain empty until peak flow events occur). The new wet well and pipe provide approximately 12,000 gallons of peak flow storage.

The existing concrete wet well becomes a secondary peak flow basin in the proposed design. The pumps will be removed and the floor grouted to drain to an outlet in each compartment. The outlet connects the secondary basin to the new wet well via 8-inch PVC pipe. If the primary storage unit reaches its capacity in a prolonged peak flow event, the wastewater entering the plant will overflow from the trash tank into the secondary basin (existing concrete wet well). After the peak flow event is over, the secondary basin will drain by gravity to the new wet well.

The resulting capacities of the proposed wet well and peak flow storage units are at follows:

	Existing	Proposed
Inactive Volume	4,600 gal	260 gal
Active Volume	3,800 gal	290 gal
Total Peak Flow Capacity	7,300 gal	26,000 gal
Minimum Pump Cycle Time	340 min	26 min

In addition to the peak flow storage, the project includes provisions for an emergency generator to power the entire plant and maintenance building in the event of power failure. The generator will have a standby capacity of 300 kW and a prime (i.e. sustained) capacity of 270 kW. The generator will be portable for use at other camp facilities, but will not be used off site. It includes a 400 gallon fuel tank and will run on No.2 diesel; the generator will operate for approximately 24 hours at 75 percent capacity on one tank of fuel.

HALFF

Dallas, Texas 75243
(214) 572-2272
Fax (214) 572-2273

Also included in the project will be an upgrade of the plant's SCADA software and computer hardware.

Preliminary coordination has occurred with TCEQ on this project. A March 17, 2010 letter from Mr. Firoj Vahora states that the proposed project is considered by TCEQ to include maintenance activities intended to improve the quality of the treated effluent. The letter further state that proposed project does not violate any current permit conditions.

Variances:
A variance is requested from 30 TAC Chapter 217.128 (c). An aerator is not included in the design for the following reasons:

- The first unit of the MBR system is an anoxic zone for denitrification, which requires a minimal DO concentration for optimum performance.
- Odors are not currently a problem at the plant and should not become a problem after the modifications are constructed. The peak flow basins will be closed. One of existing odor control units will be moved to the new lift station/peak flow storage unit; the other odor control unit will be moved to the trash tank.

Certifying Statement:
I hereby certify that the plans and specifications for the proposed wastewater treatment plant modifications are in substantial compliance with the requirements of TCEQ Chapter 217 – Design Criteria for Domestic Wastewater Systems.

cc: TCEQ Region 4